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ABSTRACT

Findings of a study that investigated the meaning and assessment of student mastery in outcome-based education (OBE) and Coalition of Essential Schools (CES) classrooms are presented in this paper. Classroom observations were conducted during 1991-92 in a total of 12 10th-grade classrooms--of 4 teachers in an OBE school in Johnson City, New York, and 8 teachers in a CES program in Lancaster, Pennsylvania. Findings indicate that the student assessment practices of the OBE and CES teachers generally reflected the philosophical premises and pedagogical components of each restructuring movement. Both approaches' focuses on the student as learner and on student mastery resulted in increased student responsibility for the construction of individual knowledge and a change in the role of assessment from a separate task to an integral component of instruction. Each school combined quantitative and qualitative measurements and demonstrated a shared commitment to the beliefs that all students can learn and that learning outcomes must be explicitly stated. (26 references) (LMI)

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A Comparison of the Assessment of Mastery in an Outcome-based School and a Coalition of Essential Skills School

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Abstract

This article briefly describes and compares the principles and practices of outcome-based education and of the coalition of essential schools. It focuses upon the results of a research study which investigated the meaning and assessment of student mastery in the classrooms of twelve 10th grade teachers; four teachers in the outcomes-driven developmental model in Johnson City, New York, and eight teachers in an essential schools program in Lancaster, Pennsylvania.

Reminiscent of earlier periods in the history of American public education, the strong cry for fundamental reform and restructuring of public schools during the past two decades has brought a myriad of responses, both hollow and substantive, from policy makers and educators at the national, state, and local levels. Two school reform efforts, outcome-based education (OBE) and the coalition of essential schools (CES), developed during this period. Each is based upon in depth research of student learning within the context of American schools and has been adopted by many school districts in their attempts to increase student achievement and to improve their programs of curriculum and instruction.

In this article, the philosophical principles and pedagogical practices of both outcome-based education and the coalition of essential schools are briefly described and compared. The emphasis of the article is upon the results of a research study investigating the meaning and determination of student mastery in the classroom assessment practices used by twelve 10th grade teachers, four in an OBE high school and eight in a CES high school.

Outcome-Based Education

The origins of outcome-based education lie in the theory of mastery learning as developed by John B. Carroll (1963) and in the

extension of this theory and the development of its practical implications in the research of Benjamin S. Bloom (1968, 1976). Several educational researchers including Block (1971), Block & Anderson (1975), and Guskey (1985) have further elaborated upon the work of Carroll and Bloom in the investigation of mastery learning and its application to classroom practice.

During the early 1980s, the expansion of the ideas and practice of mastery learning from the space of the classroom to the larger arena of the total school program necessitated a more comprehensive articulation of the philosophical premises and instructional components of this theory about student learning. Several advocates and foremost practioners of mastery learning have formed the National Center for Outcome Based Education and the Network of Outcome-Based Schools as a means of developing a unified statement of the essentials of mastery learning for the classroom, school, and school district (Block, Efthim, & Burns, 1989).

As a result of this combined effort, the following statements identify the key philosophical principles and essential operational components of outcome-based education:

The advocates of outcome-based education believe that:

1. All students can learn and succeed.
2. Success breeds success.
3. Schools control the conditions of success.

Operationally, outcome-based education means:

1. Using clearly defined outcomes for all students.
    a. To define and develop curriculum content, structure, and articulation
    b. To establish criterion-referenced measures of student and program success

2. Organizing instructional delivery based on the performance capabilities and learning needs of students
3. Adjusting instructional time and learning opportunities to enable all students to reach outcome goals successfully
4. Formally acknowledging and documenting student learning and success whenever they occur
5. Modifying the instructional program on the basis of documented student learning results and available data on instructional effectiveness. (Spady, 1985, cited in Block, et al., 1989, pp. 11-12)

The Coalition of Essential Schools

The Coalition of Essential Schools as a school restructuring movement grew out of the research effort, "A Study of High Schools," which was an inquiry into American secondary education conducted from 1979 to 1984 (Sizer, 1984; Powell, Farrar, & Cohen, 1985; Hampel, 1986). Having developed into a high school-university partnership, CES is devoted to strengthening the learning of students and rejects the practice of top-down, standardized solutions to school problems as unworkable. CES schools subscribe to a set of "common principles" which shape their philosophical premises and pedagogical practices. These principles are stated and summarized below:

1. The school should focus on helping adolescents learn to use their minds well.
2. The school's goals should be simple: that each student master a limited number of essential skills and areas of knowledge.
3. The school's goals should apply to all students, while the means to these goals will vary as those students vary.
4. Teaching and learning should be personalized to the maximum feasible extent.

5. The governing practical metaphor of the school should be student-as-worker; the prominent pedagogy will be coaching.
6. The emphasis on student mastery should be the students' demonstration that they can do important things.
7. The tone of the school should stress values of unanxious expectation.
8. The principals and teachers should view themselves as generalists first and specialists second.
9. Teacher loads should be reduced to eighty or fewer pupils. Budget costs for this should not exceed 10 percent of the traditional schools and be accomplished through the phased reduction of some services now provided by the comprehensive high school. (Sizer, 1989, pp. 1-8)

Comparing OBE and CES

As indicated in the preceding statements, both OBE and CES share similar beliefs about student learning but differ in their epistemological orientations to the construction of knowledge, in aspects of their pedagogical practices, and in the micropolitical direction of school reform.

Both OBE and CES clearly state a central belief that all students can learn and master a limited number of essential skills and areas of knowledge, and that curricular decisions should be guided by the aim of thorough student mastery and achievement. Both CES and OBE underscore the personal value of success for all students and its positive effects upon student motivation and self-concept. Both efforts maintain that the essential skills and knowledge required for student mastery should be expressed in clearly defined outcomes or results which are known to the student

prior to assessment. Both movements also advocate the use of criterion-referenced measurements in the determination of student competence.

Although both are committed to a belief in mastery learning, the personal value of student success, and clearly defined criterion-referenced measures of student assessment, the two restructuring movements vary considerably in their stated approaches and means to these aims.

Much of the literature on mastery learning and subsequently, OBE, has its roots in a technical-rational epistemology which views the teacher as a manager, a "deliver of instructional services" using pedagogical skills and techniques which are rational, objective, and firmly grounded in research findings based upon quantitative evidence of increases in student achievement. The psychological paradigm most often informs OBE's construction of knowledge.

In contrast, the research base of CES, "A Study of High Schools," stems from an ecological-interpretive epistemology (Bowers & Flinders, 1990), is rooted in philosophy, and has used the methods of historiography and anthropology to discern its findings. The metaphor CES proponents use to describe the teacher is that of "a coach," whose role is to "provoke students to learn how to learn and thus to teach themselves" (Sizer, 1989, p.3). The teachers in CES are responsible for identifying the essential questions of the knowledge or skills students are to learn and to

actively engage students in the text or the experience so that they construct their own responses.

The underlying difference of the two metaphors is in the amount of personal judgment the teacher can exercise in the determination of instruction, curriculum, and interaction with the learner. As a "deliverer of instructional services," the OBE teacher becomes a "conduit" (Bowers & Flinders, 1990, p.10) for an externally prepared instructional package. There are few unpredictable teacher behaviors. Whereas CES maintains that in the personalization of teaching and learning, decisions about curriculum, instruction, use of time, and choice of teaching materials "must be unreservedly placed in hands of the teaching staff and principal."

Similarly, the CES principles advise teachers to go beyond the borders of their prescribed curriculum and become generalists rather than subject specific specialists by stressing the interdisciplinary nature of curricular knowledge and rejecting the notion of subjects as "conventionally defined." In keeping within the technical-rational paradigm, OBE organizes knowledge through the logical sequencing of curricular content in defined units of study. Disciplinary structures are clearly defined and systemically arranged to form a framework for curricular decisions.

In their political orientation to the structural organization of schooling, OBE proponents have worked toward the development of a systematic model of school practice which can be disseminated from school district to district whereas CES proponents have

steadfastly refused to articulate a dissemination model of school practice and favor contextually based programs which have found their own path to the CES principles.

OBE assessment practices in the literature are predominantly "tests," quantitative paper and pencil measures of student learning and are viewed as a continuous gathering process of diagnostic, formative, and summative data which inform student progress and future instruction. CES's assessment practices are termed "authentic" in their application to the "real" world outside of school and generally eschew quantitative, "objective" measurements of student learning for the use of performances, portfolios, and exhibitions which demonstrate "what the student can do" and evoke fundamental questions which cross traditional subject specific disciples. In the construction of performance-based assessments, CES teachers are advised to "reverse typical test-design procedures, by first specifying a model task, then devising a fair and reliable plan for scoring" (Wiggins, 1990, p.2).

Investigating Mastery in OBE and CES Schools

The aim of this study was the investigation of how the central belief in student mastery in both OBE and CES manifested itself in the pedagogical practices of secondary teachers at the school site, particularly in the types of instruments of classroom assessment used by these teachers and in the language they used to describe assessment practices.

Some of the following questions guided this investigation: How closely aligned were the assessment practices of the teachers of each reform effort with the central belief of student mastery and the other principles of each movement? Did the structure of these practices reflect the epistemological orientations of each movement? What impact did the types of assessment used have upon nature of the curricular content? What effect did external constraints such as district and state requirements have upon their assessment practices? How did students respond to the requirements of mastery and the prior knowledge of outcomes?

Research Methods

The research sequence for this study included a comprehensive synthesis of the research literature on mastery learning, outcome-based education, essential schools and classroom assessment. Published and unpublished research on the two school sites (Burns, 1987; Vickery, 1988; Desmond, 1990) in the study was also reviewed. Classroom observation was conducted in the twelve classrooms during the middle and the end of the first semester of the 1991-92 school year; the number of days observed in each classroom ranged from three to eight days. The researcher conducted openended, structured interviews with central staff personnel who directed school district assessment and curricular decisions and with each of the twelve teachers who agreed to participate in the study.

OBE in Johnson City and

CES in Lancaster

The OBE school site was the comprehensive high school of the Johnson City Central School District, located in Johnson City, New York, an urban village adjacent to the city of Binghamton with an approximate population of 17,000 residents. Johnson City's involvement with mastery learning began in the mid-1970s and evolved in the 1980s into a curriculum and instruction alignment model based on outcome-based education known as the Outcome-Driven Developmental Model (ODDM). ODDM was validated as a total school improvement model by the National Institute of Education in 1985; administrators and teachers within the district are leaders in the national dissemination of ODDM.

The CES school site was the comprehensive McCaskey High School of the School District of Lancaster, Lancaster, Pennsylvania located in the center of Lancaster City, whose population numbers approximately 85,000. McCaskey High School's involvement with the essential schools program began informally in 1987 and formally as an essential "school within school" in 1991-92 after a year of curriculum and instructional planning with its first team of eight teachers.

The team of four teachers in Johnson City included a math (algebra II) teacher, English teacher, science (biology) teacher, and a history (world) teacher, together comprising the district's pilot program "MESH" for a group of eighty 10th-grade students.

The students in this program are 95% white and termed a "middle level" of academic students who populate four intact homerooms and share the same four academic subject teachers. Two of the objectives of the MESH program are stable, personalized grouping for these students throughout their 10th-grade year and integrated planning and implementation of curricular content among the four teachers. Instruction occurs in four self-contained classrooms which are adjoining or nearby in the high school building.

The McCaskey CES program included two teams of four teachers in the respective four content areas of algebra II, communication arts, American cultures, and biology. The 160 students in the program are approximately 75% African American, Latino, and Asian; the remaining are 25% white; and all are termed "middle with some lower level academic" students. Like the Johnson City program, each team of 80 students is consistently grouped with the same team of four teachers, although all eight teachers meet as a larger team to plan instruction. All classrooms are self-contained and with the exception of the two biology classrooms, are adjoining in the one wing of the high school building. In addition to stable, personalized grouping for the students, the program's main objective has been the implementation of integrated curriculum and authentic assessment in conjunction with the other CES principles.

Results and Discussion

The most strikingly consistent finding of the study was each teacher's verbal emphasis upon the student and his/her learning rather than upon the teacher's activities in the classroom. As one McCaskey teacher stated, "I no longer think about the upcoming content and ask myself, 'How am I going to teach this concept?' Rather, I ask myself, 'How are my students going to learn this concept?' I have changed the way I think about instruction." This emphasis reflects both OBE and CES's philosophical focus upon student learning and is evidence of an internalization of this belief by each teacher in both programs.

Although each of the teachers voiced their belief in the capacity of each student to learn or use his/her mind well, the McCaskey CES teachers did not define mastery numerically as did the Johnson City OBE teachers in their articulation of the levels which constituted student mastery in their assessments. The Johnson City district has had a clearly defined policy for nearly a decade specifying a grade of 80% as the necessary requirement for the mastery of a unit of learning. Without this percentage, a student does not receive a grade and must seek correctives to obtain mastery. Each JC teacher stated this quantitative level and the ongoing provision of revisions, correctives, readministration of tests, and rewrites until a student achieves this level.

The criteria for student mastery in the CES program was stated in the form of written rubrics of detailed, descriptive sentences

defining the qualities of the performance which were need to attain a certain level such as "unsatisfactory," "minimal," "satisfactory," "good," or "excellent." Although each of the McCaskey teachers listed failing grades for a few students in each group (an unacceptable path for a student in Johnson City), they stated the majority of students were willing to revise their performances to a higher criterion level. One of the eight teachers found that students were more likely to revise to a higher level if the errors were specified, and if no concluding level or grade was stated. She stated that most of the students in the program had previously been happy "C" or "D" students who did not see the purpose in going beyond these grades and initially resisted revision requirements.

Differences in the assessment practices of each program were also evident in the types of assessment instruments used. OBE instruments were most often paper and pencil tests such as multiple choice, short answer, written problems, and writing samples or written compositions. The Johnson City (JC) teachers pretested their students, and regularly used formative written or objective measurements in preparation for more comprehensive summative evaluations. These teachers were also incorporating performance assessment such as student collages, collaborative newspapers, scripts, and biology projects and reports within their practices, and trying to relate these to "authentic" experiences within the students' lives.

Although each of the McCaskey teachers stated they still used paper and pencil quizzes at times, they used mostly performance assessments. Writing samples in the form of logs, essays, journals, diaries, research reports, biographies, lab reports, poetry, scripts, letters, scenarios, etc. and oral presentations were the most commonly used assessment procedures. Culminating exhibitions for the completion of the two themes for the semester included live and videotaped performances of dancing, acting, or poetry reading; sculpture; two dimensional art work; scaled models; simulations such a mock trial; scientific demonstrations; graphing; and community projects which as stated by Wiggins (1990), "were more appropriately public, and involved an audience or panel" and were "authentic." Students were required to maintain a portfolio of their "best" work and were encouraged to collaborate with others in their performances. Parents, community members, and school staff in addition to the program's teachers and students were invited into the school to assess these final exhibitions using rubrics and rating scales written by the team.

Teachers in both the CES and OBE programs did not differentiate between instrumental time and assessment activities, but unanimously viewed assessment as an ongoing process intertwined with and informing instruction. Having defined the learning outcomes necessary for mastery, these teachers were continually assessing a student's progress in reaching those outcomes. Ten of the twelve teachers attributed the continuous assessment process to their role as "observers and facilitators" who moved throughout

their classrooms while students learned cooperatively or individually.

Both groups of teachers also implemented some form of student self assessment of learning. One teacher had devised a clear set of criteria for student self assessment directed at JC's exit behavior of "student as self directed learner" and was sharing this instrument with other team members. Another JC teacher reiterated this emphasis upon student responsibility when she stated that, "a menu of teacher devised correctives is not presented to a student who has not mastered a component of learning. Rather the student is asked, 'What are you going to do to go beyond this level?'" McCaskey teachers instructed their students in assessment by having students evaluate sample essays or models according to specified criteria on the rubrics in preparation for students' assessment of their own and others' work. These CES teachers stated that students responded positively to having available predefined criteria for evaluation and models of expected tasks; in fact a few used the opportunity to challenge a teacher's judgment on the application of the criteria.

Both OBE and CES teachers evaluated their assessment instruments as to the levels of student thinking required. McCaskey teachers cited examples of how their performance assessments demonstrated the higher levels of student thinking. Johnson City teachers referred several times to the "structures of the disciplines," district devised curriculum models outlining the lower and higher thinking levels of the cognitive structure of each

disciple; two JC teachers discussed the "the structures" with their class during observation. One teacher said the "structures" helped her eliminate extraneous content material, reduce the breadth of textbook coverage, and focus upon the essential learnings. Teacher made charts of this curriculum model were hanging in each of the JC classrooms. This conscious alignment with a prescribed structure of one's discipline and its control over one's teaching is consistent with the epistemological orientation of an OBE model.

The external constraint imposed by the New York state curriculum guidelines and the New York state Regents examination surfaced in each of the JC interviews. Each teacher lamented that multiple choice testing was a reality for their students, directed their forms of classroom assessment, and would not change substantially until "the Regents changes." One of the JC teachers observed was instructing students on the completion and analysis of sample Regents questions as a means of student preparation for these examinations.

However, the opportunity for change is occurring. Under the New York State Board of Regents "A New Compact For Learning" (1991), the Regents assessments will not be limited to standardized, multiple choice tests, but will include portfolios, teacher evaluations, and other forms of assessing student problem solving, analytical, and synthesis skills. The Johnson City school district also received a variance in January, 1992, from the State Board and will be involved in the preparation of performance based measures for the state of New York. In contrast to these JC

teachers, the CES teachers in the Pennsylvania district mentioned that the district curriculum requirements and the flexible, openended state guidelines were only a minor and almost minimal restraint.

One unexpected outcome of this research was the role that performance assessment practices played in facilitating the teaming of the teachers and in the integration of curriculum. The culminating exhibitions of the CES teams were planned by all of the content teachers as a team; other performances involved the collaborative efforts of teachers in two or more content areas. The use of performance assessments which crossed subject lines also required the combined planning of the JC teachers, although to a much lesser extent due to their limited use. In both schools, the creation and implementation of performance assessments was one means of "pulling in" the algebra teachers who in both CES and OBE had the greatest difficulty in integrating their content with that of the other disciples.

Conclusions

The assessment practices of the OBE and CES teachers generally portrayed the philosophical premises and pedagogical components of each restructuring movement. Both OBE and CES' emphases on the student as learner and on student mastery of previously defined knowledge and skills had effectively changed the cognitive focus of teachers away from themselves as transmitters of teaching

activities to the learners, an important shift which supported the learner's role in the active construction of his/her own knowledge.

This shift in focus also changed the role of assessment as a task separate from instruction to an integrated, continuous portion of instruction with the responsibility for this role not just upon the teacher, but also upon the student, and possibly, his/her peers and community.

The epistemology of each reform movement as advocated in the literature of each movement shaped and influenced the pedagogy of the OBE and CES teachers. However, a blending of the borders between the "objective, quantitative" assessment practices of OBE and the "authentic, qualitative" measures of the CES occurred in the actual classrooms. This blending of practices may have been due to the fact that both sets of teachers were in transition: the McCaskey teachers were in early years of CES; the OBE teachers who were in an pilot integrative curriculum program.

In both programs, the shared commitment to the beliefs 1) that all students can learn under the right conditions and 2) that learning outcomes must be explicitly stated provided the foundation for a strong education "of the students, by the students, and for the students." As this study indicates, both reform movements as practiced in the classroom have much in common with each other and have much to learn and benefit from each other.

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